

**NORTH CAROLINA DIVISION OF  
AIR QUALITY**

Application Review

**Issue Date: XXXXX**

**Region:** Mooresville Regional Office  
**County:** Cabarrus  
**NC Facility ID:** 1300155  
**Inspector's Name:** Denise Hayes  
**Date of Last Inspection:** 10/23/2019  
**Compliance Code:** 3 / Compliance - inspection

<p align="center"><b>Facility Data</b></p> <p><b>Applicant (Facility's Name):</b> Piedmont Natural Gas - Concord Compressor Station</p> <p><b>Facility Address:</b> Piedmont Natural Gas - Concord Compressor Station 2560 Derita Road Concord, NC 28027</p> <p><b>SIC:</b> 4923 / Gas Transmission And Distribution <b>NAICS:</b> 22121 / Natural Gas Distribution</p> <p><b>Facility Classification: Before:</b> Title V <b>After:</b> <b>Fee Classification: Before:</b> Title V <b>After:</b></p>			<p align="center"><b>Permit Applicability (this application only)</b></p> <p><b>SIP:</b> 02D .0516, .0521, .1423, .1806 <b>NSPS:</b> 02D .0524 (JJJJ) <b>NESHAP:</b> 02D .1111 (ZZZZ) <b>PSD:</b> <b>PSD Avoidance:</b> 02Q .0317 (02D .0530, .1111) <b>NC Toxics:</b> <b>112(r):</b> <b>Other:</b></p>								
<p align="center"><b>Contact Data</b></p> <table border="1"> <thead> <tr> <th>Facility Contact</th> <th>Authorized Contact</th> <th>Technical Contact</th> </tr> </thead> <tbody> <tr> <td>Lance Eckford  (919) 528-3383 185 Enterprise Drive Rockingham, NC 28379</td> <td>Adam Long GM Pipeline Operations (704) 731-4130 4720 Piedmont Row Drive Charlotte, NC 28210</td> <td>Cynthia Winston Manager, Permitting and Compliance (919) 546-5538 410 South Wilmington Street Raleigh, NC 27601</td> </tr> </tbody> </table>			Facility Contact	Authorized Contact	Technical Contact	Lance Eckford  (919) 528-3383 185 Enterprise Drive Rockingham, NC 28379	Adam Long GM Pipeline Operations (704) 731-4130 4720 Piedmont Row Drive Charlotte, NC 28210	Cynthia Winston Manager, Permitting and Compliance (919) 546-5538 410 South Wilmington Street Raleigh, NC 27601	<p align="center"><b>Application Data</b></p> <p><b>Application Number:</b> 1300155.20B <b>Date Received:</b> 03/25/2020 <b>Application Type:</b> Renewal <b>Application Schedule:</b> TV-Renewal <b>Existing Permit Data</b> <b>Existing Permit Number:</b> 09604/T08 <b>Existing Permit Issue Date:</b> 06/03/2019 <b>Existing Permit Expiration Date:</b> 11/30/2020</p>		
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<p><b>Review Engineer:</b> Jim Hafner</p> <p><b>Review Engineer's Signature:</b> _____ <b>Date:</b> _____</p>			<p align="center"><b>Comments / Recommendations:</b></p> <p><b>Issue</b> 09604/T09 <b>Permit Issue Date:</b> <b>Permit Expiration Date:</b></p>								

## 1. Purpose of Application

Piedmont Natural Gas - Concord Compressor Station currently holds Title V Permit No. 09604T08 with an expiration date of November 30, 2020 for a natural gas compressor station in Concord, Cabarrus, County, North Carolina. This permit application is for a permit renewal without modification. The renewal application was received on March 25, 2020, or at least six months prior to the expiration date. Therefore, the existing permit shall not expire until the renewal permit has been issued or denied. All terms and conditions of the existing permit shall remain in effect until the renewal permit has been issued or denied.

## 2. Facility Description

This is a compressor station used to compress and supply excess natural gas during peak periods.

The facility is a Title V facility because potential emissions of nitrogen dioxide (NO<sub>x</sub>), volatile organic compounds (VOC), and carbon monoxide (CO) each exceed 100 tons per year.

## 3. History/Background/Application Chronology

December 4, 2019	TV permit renewal issued. Air Permit No. 09604T07 was issued on December 4, 2015 with an expiration date of November 30, 2020.
June 3, 2019	Air Permit No. 09604T08 was issued for the removal of operating restriction incorporated in the permit under 15A NCAC 02Q .0317. The General Conditions were also updated to specify that a permit application for TV renewal is due no later than six months before permit expiration date.
November 26, 2019	Application No. 1300155.20A was received. The application requested that nitrogen dioxide (NO <sub>x</sub> ), volatile organic compounds (VOC), and carbon monoxide (CO) monitoring and recordkeeping requirements from Permit Sections 2.2 A.3 and 2.2 A.4. (Avoidance of 15A NCAC 02D .0530: Prevention of Significant Deterioration) be removed while retaining the avoidance limits. The application was denied on March 4, 2020 because DAQ determined that the request was invalid.

### Application Chronology

March 25, 2020	Received permit application 1300155.20B for renewal.
March 25, 2020	Sent acknowledgment letter indicating that the application for permit renewal was complete.
August 6, 2020	Draft permit and review forwarded for comments.
XXXXXX	Draft permit and permit review forwarded to public notice.
XXXXXX	Public comment period ends.
XXXXXX	EPA comment period ends.
XXXXXX	Permit issued

## 4. Permit Modifications/Changes and TVEE Discussion

The following table describes the modifications to the current permit as part of the renewal process.

Page No.	Section	Description of Changes
Throughout	Throughout	<ul style="list-style-type: none"> <li>Updated permit/application numbers.</li> <li>Updated dates.</li> </ul>
Throughout	Throughout	<ul style="list-style-type: none"> <li>Updated 15A NCAC 2D to 15A NCAC 02D</li> <li>Updated 15A NCAC 2Q to 15A NCAC 02Q</li> </ul>
Pages 4	Section 2.1 A	<ul style="list-style-type: none"> <li>Added 15A NCAC 02D .1806</li> </ul>
Pages 4 - 7	Section 2.1.A.1	<ul style="list-style-type: none"> <li>Revised standard language to be consistent with current shell standards. No changes in intent were made.</li> </ul>
Page 6	Section 2.1 A.1	<ul style="list-style-type: none"> <li>Removed Paragraphs 2.1 A.1.m.(2)(ii) &amp; (iii)</li> </ul>
Page 8	Section 2.1 B	<ul style="list-style-type: none"> <li>Added 15A NCAC 02D .1806</li> </ul>
Pages 8 - 12	Section 2.1.B.1	<ul style="list-style-type: none"> <li>Revised standard language to be consistent with current shell standards. No changes in intent were made.</li> </ul>
Page 13	Section 2.1 C	<ul style="list-style-type: none"> <li>Added 15A NCAC 02D .1806</li> </ul>
Pages 13 - 15	Section 2.1.C.1	<ul style="list-style-type: none"> <li>Revised standard language to be consistent with current shell standards. No changes in intent were made.</li> </ul>
Page 17	Section 2.2 A.3	<ul style="list-style-type: none"> <li>Updated emission factors in Table 2.2 A.3</li> </ul>
Page 17	Section 2.2.A.3	<ul style="list-style-type: none"> <li>Revised paragraph 2.2.A.3.b.iii.</li> </ul>
Page 19	Section 2.2 A.4	<ul style="list-style-type: none"> <li>Updated emission factors in Table 2.2 A.4</li> </ul>
Page 19	Section 2.2 A.3.h	<ul style="list-style-type: none"> <li>Removed reporting requirement of emergency generator (ID No. EG01) hours of operation</li> </ul>
Page 19	Section 2.2A.4	<ul style="list-style-type: none"> <li>Revised paragraph 2.2.A.4.b.iv.</li> </ul>
Page 21	Section 2.2.5.A.c	<ul style="list-style-type: none"> <li>Removed reporting requirement of total monthly HAP emissions (individual and total combined) for each engine.</li> </ul>
Page 21	Section 2.2 A.6	<ul style="list-style-type: none"> <li>Added 15A NCAC 02D .1806</li> </ul>
Page 22	Section 2.2 B.1	<ul style="list-style-type: none"> <li>Added 15A NCAC 02D .1418</li> </ul>
Page 22	Section 2.2.B.2	<ul style="list-style-type: none"> <li>Revised from Section 2.2.B.1</li> </ul>
Page 22	Section 2.2.B.2	<ul style="list-style-type: none"> <li>Added paragraph 2.2 B.2.h.ii.</li> </ul>
Page 25	Section 3	<ul style="list-style-type: none"> <li>Updated General Conditions (v5.5, 08/25/2020)</li> </ul>

This permit renewal is without modification. Minor edits consistent with current DAQ policy were made to the Title V Equipment Editor.

## 5. Regulatory Review

Piedmont Natural Gas - Concord Compressor is subject to the following regulations. The facility's equipment and operations have not changed since the last renewal in 2015. The permit was updated to reflect the most current stipulations for all applicable regulations, where necessary.

- 15A NCAC 02D .0516, Sulfur Dioxide from Combustion Sources - Natural gas is inherently low in sulfur content, therefore, combustion sources firing natural gas will always have emissions of less than the allowable standard of 2.3 pounds per million Btu. Therefore, no monitoring, recordkeeping or reporting will be required.
- 15A NCAC 02D .0521, Control of Visible Emissions – The natural gas-fired reciprocating engines (**ID Nos. COMP04, COMP05, COMP06 and COMP07**) will be subject to a 20% opacity limit. According to MRO, based on inspections of similar sources and this engineer's experience the engines can operate with no visible emissions. Therefore, the facility is expected to be in compliance with 15A NCAC 02D .0521 and no monitoring, recordkeeping or reporting will be required.
- 15A NCAC 02D .0524, New Source Performance Standards – Piedmont Natural Gas - Concord Compressor Station is subject to New Source Performance Standards, 40 CFR Part 60, Subpart JJJJ. More discussion on NSPS is provided below in Section 6.
- 15A NCAC 02D .1111, Maximum Achievable Control Technology (MACT) – Piedmont Natural Gas - Concord Compressor Station is subject to National Emission Standards for Hazardous Air Pollutants – Area Source GACT, 40 CFR Part 63 Subpart ZZZZ. More discussion on GACT is provided below in Section 6.
- 15A NCAC 02D .1418, New Electric Generating Units, Large boilers, and Large I/C Engines (RACT) – Piedmont Natural Gas - Concord Compressor Station is subject to Reasonable Available Control Technologies (RACT) applicable to lean burn stationary internal combustion engines rated at equal to or greater than 2,400 brake horsepower permitted after October 31, 2000 but are not subject to 15A NCAC 02D .0530 or .0531. More discussion on RACT is provided below in Section 6.
- 15A NCAC 02D .1423, Large Internal Combustion Engines (RACT) – Piedmont Natural Gas - Concord Compressor Station is subject to Reasonable Available Control Technologies (RACT) applicable to large internal combustion engines. More discussion on RACT is provided below in Section 6.
- 15A NCAC 02D .1806, Control and Prohibition of Odorous Emissions – This regulation is state enforceable only. Continued compliance is anticipated.
- 15A NCAC 02Q .0317, Avoidance Condition – Piedmont Natural Gas - Concord Compressor Station has accepted permit limits on CO and VOC emissions to avoid 15A NCAC 02D .0530, Prevention of Significant Deterioration (PSD) and 15A NCAC 02D .0531, Sources in Nonattainment. The permit condition was updated to the most recent stack test results for the after control emissions factors for VOCs and CO for engines (ID Nos. COMP01 – COMP05).

More discussion on PSD is provided below in Section 6.

## **6. NSPS, NESHAPS/MACT, PSD, 112(r), RACT, CAM**

### NSPS

The only applicable NSPS is Subpart JJJJ. This regulation applies to new spark-ignition engines. The only such engines at the facility are COMP04 through COMP07, although COMP06 and COMP07 have not yet been constructed.

For this size of engine, the requirements of Subpart JJJJ depend on whether or not the engine is certified to the emission limits in Table 1 of the regulation. For certified engines, the Permittee must follow the manufacturer's recommendations for maintenance. For noncertified engines, the Permittee must perform regular emission testing and develop their own maintenance plan for the engines. Regular recordkeeping of monitoring activities must be kept and reported. Engines (ID Nos. COMP04 and COMP05) are non-certified engines requiring emission testing every 8,760 hours or 3 years, whichever comes first. If engines (ID Nos. COMP06 and COMP07) are ever installed, they will need to be certified to emission limits specific to the date of manufacture under NSPS Subpart JJJJ.

### NESHAP/MACT

Note that PNG is currently avoiding HAP-Major status by limiting emissions of HAP to below major source thresholds.

The only applicable MACT is Subpart ZZZZ for area sources (area source GACT). This regulation applies to all reciprocating internal combustion engines (RICE). The “emergency demand response” operating allowance was vacated from the Rule effective May 1, 2016. The permit condition was updated to remove references to emergency demand response.

For the purposes of this regulation, the engines at the facility can be separated into three categories: new units, existing units, and emergency-use units.

### PSD

Piedmont Natural Gas - Concord Compressor Station has accepted a PSD avoidance condition to limit emissions of VOC and CO to each less than 250 tons per consecutive 12-month period in order to remain classified as a PSD minor source. The VOC emissions are much less than 250 tons per year, which demonstrates compliance with the PSD avoidance limit.

The NO<sub>x</sub> avoidance limits were removed per the facility's request to modify T08 permit. The combined potential emissions of NO<sub>x</sub> from COMP01 through 3 and EG01 are less than 100 tons per year (73.86 tpy) based on stack testing representative of engines COMP01 through COMP03 and the manufacturer's specifications for emergency generator EG-01. See the review for the T08 permit for more details.

### 112(r).

The facility is not subject to Section 112(r) of the Clean Air Act requirements because it does not store any of the regulated substances in quantities above the 112(r) thresholds. No change with respect to 112(r) is anticipated under this permit renewal.

### RACT

The facility is located in an area that was previously designated as ozone nonattainment. Given the potential emissions from the facility and the type of engines used, it is subject to 02D .1423, which regulates emissions from large internal combustion engines.

Note that, as of August 27, 2015, the area has now been re-designated as ozone attainment. It remains a maintenance area, and as part of the ongoing ozone maintenance plan, all existing RACT conditions continue to apply in the permit.

Piedmont Natural Gas - Concord Compressor Station is subject to Reasonable Available Control Technologies (RACT) applicable to large internal combustion engines as specified by NCAC 02D .1418. Among the sources subject to this Rule are lean burn internal combustion engines with a capacity of 2,400 or more brake horsepower, permitted after October 30, 2000 but are not subject to 15A NCAC 02D .0530 or .0531. This Rule applies to engines (**COMP01 – COMP07**). To comply with NCAC 02D .1418 including monitoring requirements, the subject sources must meet the requirements in 15A NCAC 02D .1423. Each engine is limited to no more than 125 ppm of nitrogen dioxide (NO<sub>2</sub>), corrected to 15% ppmv stack gas oxygen on a dry basis and averaged over a rolling 30-day period. The emission standards do not apply during periods of start-up and shut-down periods and periods of malfunction (not to exceed 36 consecutive hours), or during regularly scheduled maintenance activities. The facility complies with NCAC 02D .1423 through an alternative compliance demonstration submitted May 27, 2010. The demonstration simply considered the manufacturers NO<sub>x</sub> emissions guarantees of 0.7 g/bhp-hr or 62.2 ppmv for engines (**ID No COMP04 and COMP-5**) and 63.7 ppmv for the engines (**ID Nos. COMP06 and COMP07**). This is well below the emissions limit. A report documenting each engine's total nitrogen oxide emissions beginning May 1 and ending September 30 of each year is due on or before October 31 of each year. Also of note, NCAC 02D .0531(b) states if any county or part of a county to which this Rule applies is later designated in 40 CFR 81.334 as attainment, all sources in that county subject to this Rule before the redesignation date shall continue to comply with this rule.

### CAM

The CAM rule (40 CFR 64; 15A NCAC 02D .0614) applies to each pollutant specific emissions unit (PSEU) at major TV facilities that meets all three following criteria:

- the unit is subject to any (non-exempt: e.g. pre-November 15, 1990, Section 111 or Section 112 standard) emission limitation or standard for the applicable regulated pollutant.
- the unit uses any control device to achieve compliance with any such emission limitation or standard.
- The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source (i.e., 100 tons per year for criteria pollutants or 10/25 tons per year for HAPs).

Piedmont Natural Gas - Concord Compressor Station uses a catalytic oxidizer on each of the engines. The oxidizer is used to control VOC, CO, and HAP in compliance with 02Q .0317, NSPS Subpart JJJJ, and GACT Subpart ZZZZ, respectively.

- a. 02Q .0317 is an exempt emission standard, because it counts as an emission cap as defined in 02D .0614(b)(1)(E)
- b. NSPS Subpart JJJJ and GACT Subpart ZZZZ are exempt emission standards because they were proposed after the date in 02D .0614(b)(1)(A)

## **7. Facility Wide Air Toxics**

The facility does not have any TAP-specific emission limits in the permit. This permit application is not expected to change TAP emission rates.

## **8. Facility Emissions Review**

The facility-wide potential emissions do not change under this TV permit renewal. Actual emissions for criteria pollutants and HAPs for the years 2015 through 2019 are provided in the header of this permit review.

## **9. Compliance Status**

DAQ has reviewed the compliance status of Piedmont Natural Gas - Concord Compressor Station. During the most recent inspection, conducted October 23, 2019 by Denise Hayes of MRO, the facility was found to be in violation of failing to perform stack testing within the required 180 days for the replacement of the oxidation catalyst in engines (**ID Nos. COMP01, COMP02, and COMP03**). The oxidation catalyst for all three engines were replaced in July 2018 and stack testing was not performed until August 2019. The test results were approved on September 25, 2019 by the Stationary Source Compliance Branch. With the exception of this violation, the facility was found to be in compliance with all other applicable requirements. The facility's Annual Compliance Certification was postmarked on February 26, 2020 and received on March 2, 2020 indicated compliance with all applicable requirements in 2018.

## **10. Public Notice/EPA and Affected State(s) Review**

A notice of the DRAFT Title V Permit shall be made pursuant to 15A NCAC 02Q .0521. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Consistent with 15A NCAC 02Q .0525, the EPA will have a concurrent 45-day review period. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 02Q .0522, a copy of each permit application, each proposed permit and each final permit shall be provided to EPA. Also pursuant to 02Q .0522, a notice of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice provided to the public under 02Q .0521 above. South Carolina is an affected state, and Forsyth and Mecklenburg Counties are affected local programs.

## **11. Other Regulatory Considerations**

- A P.E. seal is NOT required for this renewal application.
- A zoning consistency determination is NOT required for this renewal application.
- A permit fee is NOT required for this renewal application.

## **12. Recommendations**

The permit renewal application Piedmont Natural Gas - Concord Compressor Station, located in Concord, Cabarrus County, North Carolina has been reviewed by DAQ to determine compliance with all procedures and requirements. DAQ has determined this facility is complying or will achieve compliance, as specified in the permit, with all requirements that are applicable to the affected sources. DAQ recommends the issuance of Air Permit No. 09604T09.

### Comments Received on Initial Draft

- Denise Hayes, by email on August 11, 2020.

1. Denise noted that on page 2 in the application chronology, permit T07 was issued December 4, 2015 and T08 was issued June 2019.

*Response: These have been corrected.*

2. Denise noted that the page number in the Equipment List Table needed to be updated

*Response: These have been corrected.*

- Kristen Belisario, by email on August 21, 2020.

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1. Kristen pointed out typos in the permit and review.

*Response: These have been corrected.*

2. Kristen noted the primary SIC Code was left blank.

*Response: SIC 4293 was added.*

3. Kristen noted that it is not appropriate to update the emission factors in Table 2.2.A.3 based on periodic catalyst test done annually and are conducted for a period of 15 minutes and use hand-held analytical instruments. A recommendation was made that emission factors should only change when stack testing using EPA test methods is done after a catalyst change

*Response: DAQ agrees with this. This was revised to state “The Permittee shall confirm or reestablish the emission factors ... during any subsequent performance test required after catalyst change. This sentence was also revised for Table 2.2.A.4.*

4. Kristen noted that the reporting requirement in paragraph 2.2.A.3. requiring the hours of operation for emergency generator (ID No. EG01) is a holdover from a previous permit that limited the hours of operation of 252 hours per consecutive twelve month periods.

*Response: This permit does not restrict the hours of operation of the emergency generator (EG01) for PSD Avoidance purposes and therefore, the reporting requirement can be removed.*

5. Kristen noted that the emission factors in Table 2.2.A.4. should be revised to 0566 lb/hr for VOC and 0.997 lb/hr for CO as these are the factors currently used for emissions inventory purposes.

*Response: DAQ accepts this request.*

6. Kristen suggested the removal of the requirement for reporting HAP emissions per engine in Paragraph 2.2.5.c.i. since the permit condition is based on facility-wide HAP emissions

*Response: DAQ accepts this request.*

7. Kristen requested removal of the following statement in the review “Engines (ID Nos. COMP06 and COMP07) will be installed as certified engine under NSPS Subpart JJJJ.”

*Response: This was re-worded stating that if COMP06 and COMP07 were ever installed, that they would need to meet the emission standards that correspond to the year the engines were manufactured.*